

Institution for testing, supervision and certification, officially recognized by the building supervisory authority. Approvals of new building materials, components and types of construction
Research, development, demonstration and consulting in the fields of building physics

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Test report P-BA 229/2011e

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory

Client: Preis & Co GmbH
Josef Nitsch Strasse 5
2763 PERNITZ
AUSTRIA

Test specimen: Cast iron socketless drain pipe system "FP PREIS® SML" (manufacturer: Preis & Co GmbH) mounted with different pipe clamps.

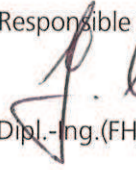
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Annex A: Measurement set-up, noise excitation, acoustic parameters
Annex F: Evaluation of measurements
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The tests were performed in a laboratory accredited by the German Accreditation System for Testing (DAP, file no. PL-3743.26) according to standard EN ISO/IEC 17025.

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Stuttgart, July 19, 2012

Responsible Test Engineer: Head of Laboratory:


Dipl.-Ing.(FH) J. Mohr


Dr. rer. nat. E. Weber



Determination of the installation sound level L_{in} in the laboratory

P-BA 229/2011e
Table 1

- Client:** Preis & Co GmbH, Josef Nitsch Strasse 5, 2763 PERNITZ, AUSTRIA
- Test specimen:** Cast iron socketless drain pipe system "FP PREIS® SML" (manufacturer: Preis & Co GmbH) mounted with pipe clamps without elastomer inlay "WOPF Perfect-N" made by Wopf (test specimen S 10459-01), respectively with pipe clamps without elastomer inlay "WOPF Perfect-N" with decoupler (made by WOCO PSC) mounted between pipe clamp and installation wall (test specimen S 10459-03).
- Test set-up:** Installation of the pipe system according to figure 8 and Annex A. First the Cast Iron Drainage System "FP PREIS® SML" with pipe clamps without elastomer inlay "WOPF Perfect-N" was mounted and the measurements were performed. Then the decoupler (made by WOCO PSC) was mounted between the pipe clamps and the installation wall and the measurements were repeated.
- Cast Iron Drainage System "FP PREIS® SML": cast iron pipes and fittings without sockets, tested and produced according to EN 877, DIN 19522 and RAL GZ 698 (GEG test mark). Diameter DN 100, OD 110, density 7.2 kg/dm³, weight ca. 8.4 kg/m, wall thickness 3.5 mm (-0.5 mm permissible deviation). Connection of the pipes by "FP PREIS® Rapid coupling" with EPDM gasket.
 - Pipe clamps: Pipe clamps without elastomer inlay "WOPF Perfect-N" made by WOPF. In every storey (basement UG and ground floor EG) two pipe clamps were installed. All clamps as fix clamps completely closed and fixed to the installation wall with hanger bolts and plastic anchors (fig. 9).
 - Decoupler: Acoustic decoupler made by WOCO PSC, which has to be mounted between pipe clamp and installation wall.
 - Down pipe support: Down pipe support and bearing with vulcanised rubber made by Preis & Co GmbH mounted in the sub basement (KG).
- The system consisted of straight pipes DN 100, three inlet branches, two 45°-basement bends with intermediate calming section and a horizontal drain section. The inlet branches in the basement and in the ground floor were closed by plugs supplied by the manufacturer. Connection of the pipes by "FP PREIS® Rapid coupling" made by Preis & Co GmbH. The pipe system was mounted by the client.
- Test facility:** Installation test facility P12, mass per unit area of the installation wall: 220 kg/m², installation rooms: sub-basement (KG), basement (UG) front, ground floor (EG) front and top floor (DG) measuring rooms: UG front, UG rear (details in Annex P and EN 14366: 2005-02). The present room configuration corresponds e.g. to two sleep or living rooms arranged one above the other with bathrooms besides.
- Test method:** The test set-up and the measurements were performed following EN 14366. Noise excitation by stationary water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s (details in Annexes A and F).

Results:

Cast Iron Drainage System: "FP PREIS® SML" with pipe clamps without elastomer inlay "WOPF Perfect-N"				
Flow rate [l/s]	0,5	1,0	2,0	4,0
Installation sound level L_{in} [dB(A)] measured in UG front	41	47	49	52
Installation sound level L_{in} [dB(A)] measured UG rear	21	26	31	36
Airborne sound pressure level $L_{a,A}$ [dB(A)] ¹⁾	41	47	49	52
Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] ¹⁾	19	24	29	34
Cast Iron Drainage System: "FP PREIS® SML" with pipe clamps without elastomer inlay "WOPF Perfect-N" with decoupler mounted between pipe clamp and installation wall				
Flow rate [l/s]	0,5	1,0	2,0	4,0
Installation sound level L_{in} [dB(A)] measured in UG front	40	45	48	52
Installation sound level L_{in} [dB(A)] measured in UG rear	<10	<10	12	15
Airborne sound pressure level $L_{a,A}$ [dB(A)] ¹⁾	40	45	48	52
Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] ¹⁾	<10	<10	<10	12

¹⁾ Evaluation according to EN 14366.

Date of tests: December 14 and 15, 2011

- Comments:**
- Sound levels below 10 dB(A) are not mentioned in the test report, since they are subject to an increased measurement uncertainty and moreover are not noticeable in a normal living environment.
 - The requirements of DIN 4109 only apply for the Installation sound level L_{in} measured in test room UG rear.

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Stuttgart, July 19, 2012
Head of Laboratory:

V. J. J. J.

Determination of the installation sound level L_{in} in the laboratory

P-BA 229/2011e
Table 2

Client: Preis & Co GmbH, Josef Nitsch Strasse 5, 2763 PERNITZ, AUSTRIA

Test specimen: Cast iron socketless drainpipe system "FP PREIS® SML" (manufacturer: Preis & Co GmbH) mounted with pipe clamps with elastomer inlay "WOPF Perfect-R, 109-114" made by Wopf (test specimen S 10459-02).

Test set-up: Installation of the pipe system according to figure 8 and Annex A.

- Cast Iron Drainage System "FP PREIS® SML": cast iron pipes and fittings without sockets, tested and produced according to EN 877, DIN 19522 and RAL GZ 698 (GEG test mark). Diameter DN 100, OD 110, density 7.2 kg/dm³, weight ca. 8.4 kg/m, wall thickness 3.5 mm (-0.5 mm permissible deviation). Connection of the pipes by "FP PREIS® Rapid coupling" with EPDM gasket.
- Pipe clamps: Pipe clamps with elastomer inlay "WOPF Perfect-R, 109-114" made by WOPF. In every storey (basement UG and ground floor EG) two pipe clamps were installed. The clamps were closed with a torque wrench with a torque of 1 Nm. The clamps were fixed to the installation wall with hanger bolts and plastic anchors (fig. 10).
- Down pipe support: Down pipe support and bearing with vulcanised rubber made by Preis & Co GmbH mounted in the sub basement (KG).

The system consisted of straight pipes DN 100, three inlet branches, two 45°-basement bends with intermediate calming section and a horizontal drain section. The inlet branches in the basement and in the ground floor were closed by plugs supplied by the manufacturer. Connection of the pipes by "FP PREIS® Rapid coupling" made by Preis & Co GmbH. The pipe system was mounted by the client.

Test facility: Installation test facility P12, mass per unit area of the installation wall: 220 kg/m², installation rooms: sub-basement (KG), basement (UG) front, ground floor (EG) front and top floor (DG) measuring rooms: UG front, UG rear (details in Annex P and EN 14366: 2005-02). The present room configuration corresponds e.g. to two sleep or living rooms arranged one above the other with bathrooms besides.

Test method: The test set-up and the measurements were performed following EN 14366. Noise excitation by stationary water flow with 0.5 l/s, 1.0 l/s, 2.0 l/s and 4.0 l/s (details in Annexes A and F).

Results:

Cast Iron Drainage System: "FP PREIS® SML" with pipe clamps with elastomer inlay "WOPF Perfect-R", tightening torque 1 Nm				
Flow rate [l/s]	0,5	1,0	2,0	4,0
Installation sound level L_{in} [dB(A)] measured in UG front	40	45	48	51
Installation sound level L_{in} [dB(A)] measured UG rear	16	20	25	30
Airborne sound pressure level $L_{p,A}$ [dB(A)] ¹⁾	40	45	48	51
Structure-borne sound characteristic level $L_{sc,A}$ [dB(A)] ¹⁾	15	19	23	29

¹⁾ Evaluation according to EN 14366.

Date of tests: December 14, 2011

Comments:

- The requirements of DIN 4109 only apply for the installation sound level L_{in} measured in test room UG rear.
- The pipe clamps were closed with a torque wrench with a torque of 1 Nm.

